

“MANAGING RESOURCE STREAMS SUSTAINABLY: COMPANY PRACTICES IN PACKAGING AND THE USE OF ELECTRONIC COMPONENTS”

This event has built on the learnings from a 2017 WEC Roundtable focused on business opportunities in a Circular Economy, which demonstrated the opportunities from extending product cycles, remanufacturing, and the Sharing Economy. Since then, business continues to devote an increasing amount of attention to the topic while, in parallel, governments have discussed at the highest levels how they can best support the transition to a Circular Economy. As the availability of several materials is getting critical, political and business leaders alike strive to reduce their economies' dependency on certain substances and regions. This is reinforced by environmental concerns ranging from microplastics in the oceans to raising global temperatures, all of which are calling for technological innovation, regulation, and its enforcement. The topic should be top of mind for any CEO.

PARTICIPANTS:

The Roundtable provided a highly interactive discussion among 25 senior level sustainability experts from seven industries and four countries; 60% from global companies (2/3 were WEC members), and 40% from NGO/ academia/think tanks.

HOST

University of Augsburg: Prof. Dr. Armin Reller, Chair of Resource Strategy, WZU, Institute of Materials Resource Management

MODERATORS

AkzoNobel: Dick Bartelse (retired)

University of Augsburg, WZU: Dr. Jens Soentgen

University of Augsburg: Prof. Dr. Axel Tuma

WBX Consulting: Willem Bulthuis

WEC: Frank Werner

SPEAKERS

BASF: Dr. Andreas Kicherer

CRONIMET Envirotech: Dr. Filipe Costa

Dow Chemical: Lorraine Francourt

KUKA Industries: Dr. Joachim Döhner

Merck Group: Dr. Martin Hostalek

Schneider Electric: Gaurav Sharma

Royal Dutch Shell: Rupert Thomas

University of Augsburg: Prof. Dr. Armin Reller

Volkswagen: Ralf Pfitzner

MAJOR POINTS OF DISCUSSION:

- (1) Modern products increasingly contain special elements that allow for functional performance. These complicated material structures are not only difficult to dismantle for recycling but often also contain strategic substances in small amounts that are easily being dissipated and often get lost. As the resource availability is hitting critical points, research* shows how challenging it is to replace substances as their alternatives often contain other undesirable economic, environmental or social features. **The fundamental challenge is to make better design and sourcing decisions.**
- (2) **Innovation in Managing Resource Streams** starts with understanding what a product contains and where its substances are being sourced. Decision-makers should be aware of the following: (a) Design for dismantling and repair becomes increasingly valuable as it creates opportunities for urban mining. (b) Biodegradable materials are often great, but sometimes not the best solution, e.g. when undermining consumers' trained skills to collect when functioning recycling systems are in place (biodegradables face environmental challenges, too). (c) Customers may be convinced to use desired materials if these enable them an additional business value such as better ways to market their own brand. (d) Start-up firms are often a great source of innovation with their unconventional ideas, so co-venturing should be considered. (e) Maintaining product ownership during the entire life cycle has proven to be a great incentive to design for lifetime extension, recyclability and improved product performance, e.g. in lighting and IT businesses, with the automobile industry watching closely.
- (3) **Packaging Materials** have continuously been redesigned for better product protection, environmental performance, and cost savings. Weight reduction has been the greatest progress in addition to safety and health improvements in the heavily regulated pharma and food industries. However, as plastics garbage is increasingly concentrating in five gigantic “gyres” in the world's oceans and microplastics have entered the food chain, better solutions are required. While industry already provides technological solutions to (a) reduce the complex structures of packaging, (b) advance recycling rates of plastics and (c) replace much of the plastics packaging by other materials, nobody wants to pay for the extra cost. And as alternative materials often show other disadvantages such as higher weight or, in the case of bio-based materials, competition with food production and natural habitats, companies abstain from radical changes that are not enforced by government. Thus, lack of regulation was identified by many as one of the greatest barriers to reducing plastics in the environment.
- (4) **Applying a circular lens** on the value chain including a vulnerability analysis for critical substances is not yet common practice amongst **manufacturers of electronic components**, although advanced examples have been presented. Such a lens can help to unveil value from circular processes for both the bottom line and customers in the various stages, from designing products and sourcing substances, manufacturing, packaging, and consumption, to product end-of-life recycling. In combination with advanced knowledge about technologies in regaining metals from wastes and access to customized B2B-collaborations, circularity may rapidly become a key practice for successful companies.
- (5) **Renewable Energy Systems** depend on several critical materials. As the systems for energy and transport are being transformed in line with the Paris agreement, key substances in the production of batteries, solar panels, and magnets are going to be scarce*. Incentivized by forecasts of changing customer behaviour in cities, the automobile industry is already investing in offers such as shared cars and rides, and autonomous driving. A secondary benefit from innovating the business with fewer cars and better customer service may be the reduction of risks from scarce materials. As the transition continues, industries such as the Oil & Gas sector will make their own adjustments. Global change is disruptive.

*Reller, Armin / Thorenz, Andrea / Tuma, Axel: several publications (2016-2018). Please contact WEC Europe to provide details.